

REMARKS

Herein, the "Action" or "Office Action" refers to the Final Office Action dated November 17, 2004.

Applicant respectfully requests reconsideration and allowance of all of the claims of the present application. Claims 1-21, 26-32 and 34-35 are presently pending. Claim 32 is amended. No new claims are added.

Rejections under 35 U.S.C. § 112

Claims 32 and 34-35 stand rejected under 35 U.S.C. § 112, second paragraph, as being "incomplete for omitting structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections."

Applicant has amended claim 32 as suggested by the Examiner. Accordingly, Applicant respectfully requests that the Office withdraw the § 112 rejections.

Rejections under 35 U.S.C. § 103

Claims 1-21, 26-32 and 34-35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over prior art admitted by the applicant in the specification in the instant application in view of U.S. Patent No. 5,282,754 to Kish et al (hereinafter "Kish"). Applicant traverses these rejections and asks that they be withdrawn and the case passed along to issuance.

Claims 1-9

Claim 1 recites an apparatus comprising:

- a first device;
- a first connector coupled to the first device;
- a second connector coupled to the first connector through a first plurality of conductors, wherein alternating pairs of conductors are reversed such that at least one pair of conductors is reversed at a crossover position located substantially closer to the first connector than the second connector; and
- a second device coupled to the second connector through a second plurality of conductors.

In making out the rejection of claim 1, the Office Action states (on Page 4),
“Therefore, it would have been obvious for one skilled in the art could implement the admitted prior art in view of Kish et al in such a way that for reducing the crosstalk between the first and second connectors to zero or negligible, the cross position of each of the alternating pairs of the first plurality of conductors could be located equally distant between the first connector and the second connector, or substantially closer to the first connector than the second connector, as long as the areas bounded by the respective alternative pair and the respective crossover point between the first connector and the second connector are substantially equal or slightly different.” As discussed below, for the “areas bounded” to be “substantially equal or slightly different”, the crossover position must be at the midpoint (or slightly different from the midpoint) between the conductors. In contrast to Kish et al, claim 1 recites the crossover position being located “substantially closer to the first connector than the second connector”.

Applicant refers to Fig. 4 and column 4, lines 43-62, of Kish, the text of which is reproduced below [emphasis added]:

1 In practice, as may be seen from Fig. 4, it is considered that primary
2 windings of an effective transformer are produced through the
3 electrical pathways associated with the conductors 84 and 86.
4 Secondary windings will be provided by the immediately adjacent
5 pathways through and associated with the cross-over conductors 88
6 and 90. Because of the crossover of the conductors 88 and 90, then
7 the *area 96* which is bounded at its sides by the conductors 92 and
8 94 and the conductors 88 and 90 as far as the crossover position 98
9 is *substantially equal to the area 100* bounded by the remainder of
10 the conductors 88 and 90 and the conductors 34 and 36. If the
11 voltage induced in the secondary winding is positive in the section
associated with the area 96, then it is negative in the section
associated with the area 100. As a result *if the areas 96 and 100 are*
substantially equal then the crosstalk through the connector
assembly of connectors 10, 50 and 60 is effectively reduced to zero.
The slight differences in the areas 96 and 100 will produce
negligible cross-talk.

12 As shown, Kish requires that the crossover be such that the resulting areas
13 96 and 100 are *substantially equal*. In order for areas 96 and 100 to be
14 substantially equal, the crossover must be at the *midpoint* (or *slightly* different
15 from the midpoint) between the conductor pairs 92/96 and 34/36. In contrast,
16 Applicant's claim 1 recites that alternating pairs of conductors are reversed *at a*
17 *crossover position located substantially closer to the first connector than the*
18 *second connector*. As such, Kish teaches *directly away* from Applicant's claimed
19 subject matter. Thus, the combination of Kish with prior art admitted by the
20 applicant in the specification in the instant application fails to disclose or suggest
21 the elements of claim 1. Accordingly, for at least this reason, claim 1 is allowable.

22 **Claims 2-9** depend from claim 1 and, as such, are allowable as depending
23 from an allowable base claim. These claims are also allowable for their own
24 recited features which, in combination with those recited in claim 1, are neither
25

1 shown nor suggested by the cited references, either singly or in combination with
2 one another.

3
4 **Claims 10-14**

5 **Claim 10** recites an apparatus comprising:

- 6
- 7 • a first integrated circuit including a plurality of differential drivers;
 - 8 • a first connector coupled to the first integrated circuit;
 - 9 • a second connector coupled to the first connector through a plurality
10 of electrical conductors, wherein alternating pairs of the electrical
11 conductors are reversed such that at least one pair of conductors is
12 reversed at a crossover position located substantially closer to the
13 first connector than the second connector; and
 - 14 • a second integrated circuit coupled to the second connector, wherein
15 the second integrated circuit includes a plurality of differential
16 receivers.

17 As discussed above with respect to claim 1, Kish requires that the crossover
18 point be at the midpoint (or slightly different from the midpoint) between the
19 conductors. In contrast, Applicant's claim 10 recites that at least one pair of
20 conductors is reversed at a crossover point located substantially closer to the first
21 connector than the second connector. As such, the Kish reference teaches away
22 from Applicant's claimed subject matter. Accordingly, for at least this reason,
23 claim 10 is allowable.

24 **Claims 11-14** depend from claim 10 and, as such, are allowable as
25 depending from an allowable base claim. These claims are also allowable for their
own recited features which, in combination with those recited in claim 10, are
neither shown nor suggested by the cited references, either singly or in
combination with one another.

Claims 15-21

Claim 15 recites an apparatus comprising:

- a printed circuit board;
- a plurality of connectors disposed on the printed circuit board;
- a first integrated circuit disposed on a first substrate, wherein the first substrate is configured to be coupled to one of the plurality of connectors;
- a second integrated circuit disposed on a second substrate, wherein the second substrate is configured to be coupled to one of the plurality of connectors; and
- a first plurality of electrical conductors coupled to the plurality of connectors, wherein alternating pairs of conductors between adjacent connectors are reversed such that at least one pair of conductors is reversed at a crossover position located substantially closer to one of the plurality of connectors than another of the plurality of connectors.

As discussed above with respect to claim 1, Kish requires that the crossover point be at the midpoint (or slightly different from the midpoint) between the conductors. In contrast, Applicant's claim 15 recites, "alternating pairs of conductors between adjacent connectors are reversed such that at least one pair of conductors is reversed at a crossover position located substantially closer to one of the plurality of connectors than another of the plurality of connectors." This structure is the opposite of the structure disclosed in Kish. As such, the Kish reference teaches away from Applicant's claimed subject matter. Accordingly, for at least this reason, claim 15 is allowable.

Claims 16-21 depend from claim 15 and, as such, are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 15, are

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neither shown nor suggested by the cited references, either singly or in combination with one another.

Claims 26-31

Claim 26 recites a method comprising:

- generating a plurality of differential signals;
- transmitting the plurality of differential signals through a first connector and a second connector to a plurality of differential receivers;
- reversing the polarity of alternating differential signals at a crossover position located substantially closer to the first connector than the second connector; and
- reversing the polarity of alternating differential signals between the second connector and the plurality of differential receivers.

As discussed above with respect to claim 1, Kish requires that the crossover point be at the midpoint (or slightly different from the midpoint) between the conductors. In contrast, Applicant's claim 26 recites, "reversing the polarity of alternating differential signals at a crossover position located substantially closer to the first connector than the second connector." This structure is the opposite of the structure disclosed in Kish. As such, the Kish reference teaches away from Applicant's claimed subject matter. Accordingly, for at least this reason, claim 26 is allowable.

Claims 27-31 depend from claim 26 and, as such, are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 26, are neither shown nor suggested by the cited references, either singly or in combination with one another.

Claims 32 and 34-35

As amended, claim 32 recites a method comprising:

- modifying a transmitter package such that the coupling coefficient of the transmitter package is substantially the same as the coupling coefficient of a receiver package;
- transmitting multiple pairs of differential signals across a plurality of conductors using the transmitter package;
- reversing polarity of alternating pairs of the plurality of conductors such that at least one pair of the plurality of conductors is reversed at a crossover position located substantially closer to the transmitter package than the receiver package; and
- receiving the multiple pairs of differential signals using the receiver package.

As discussed above with respect to claim 1, Kish requires that the crossover point be at the midpoint (or slightly different from the midpoint) between the conductors. In contrast, Applicant's claim 32 recites, "reversing polarity of alternating pairs of the plurality of conductors such that at least one pair of the plurality of conductors is reversed at a crossover position located substantially closer to the transmitter package than the receiver package." This structure is the opposite of the structure disclosed in Kish. As such, the Kish reference teaches away from Applicant's claimed subject matter. Accordingly, for at least this reason, claim 32 is allowable.

Claims 34-35 depend from claim 32 and, as such, are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 32, are neither shown nor suggested by the cited references, either singly or in combination with one another.

**Expedited Procedure
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All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Office Action.

Respectfully Submitted,

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By: 

Steven R. Sponseller
Reg. No. 39,384
(509) 324-9256